UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

DATE : 10-3-16

SUBJ: Inspection Report of United States Steel Clairton Works

FROM: James Hagedorn, Environmental Scientist, EPA Region III
Natalia Vazquez, Environmental Engineer, EPA Region III
Erin Malone, Physical Scientist, EPA Region III

VIA: Bruce Augustine, Acting-Associate Director, Office of Air Enforcement and Compliance Assistance
and
File Room

Approvals:

Name	Title	Date	Signature
Bruce Augustine	Acting-Director	10-11-16	
Natalia Vazquez	Environmental Engineer	10-4-16	
Erin Malone	Environmental Scientist	10/6/16	Erin Malone
Jim Hagedorn	Environmental Scientist	10-4-16	

Mailing Address

United States Steel Corporation
400 State Street
Clairton, Pennsylvania 15025

EPA Enforcement Personnel

Jim Hagedorn, Environmental Scientist, (215) 814-2161
Natalia Vazquez, Environmental Engineer, (215) 814-2121
Erin Malone, Physical Scientist, (215) 814-2190

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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1650 Arch Street
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Mr. Michael Dzurinko
Manager-Environmental
Mon Valley Works
United States Steel Corporation
Clairton Plant
400 State Street
Clairton, Pennsylvania 15025

Re: EPA Inspection of USS Clairton Works

Dear Mr. Dzurinko:

Enclosed with this letter is the inspection report for EPA's June 28 and 29, 2016 inspection of your Clairton Coke Plant in regard to air program requirements. Thank you for your cooperation and assistance during EPA's inspection of your air emission sources. If you should care to comment on the report for any inaccuracies, please do so. EPA appreciates your continued diligence in maintaining compliance with all applicable regulations. Please maintain a close working relationship with the Allegheny County personnel for inspections and permitting. If you should have any comments or questions in regard to this inspection report, do not hesitate to contact James Hagedorn, of the Air Protection Division, at (215) 814-2161.

Sincerely,

Bruce Augustine, Acting-Associate Director
Office of Air Enforcement and Compliance Assistance

Cc: Bill Rausch, ACHD

Enclosure

Allegheny County Health Department Personnel

William Rausch, Steel Industry Contact
William Clark, Coke Plant Contact
Angela Crowley, Coke Oven Inspector, (412) 578-8103

United States Steel Personnel

Mike Dzurinko, Environmental Manager, Mon Valley Works, 412-233-1467
Jonnell Sheetz, Clairton Works Environmental Manager, 412-233-1015
Michael Rhoads, Plant Manager, 412-233-1002
Dave Hacker, USS Law Department, 412-433-2919
Brett Tunno, USS Headquarters, Environmental Affairs, 412-433-5767
Chris Hardin, USS Headquarters, Environmental Affairs, 412-433-5904
Terry Redenbaugh, Veolia Water (Contractor to USS), 412-913-0178
Frank Kozleuchar, USS, Raw Materials Manager, 412-433-3824

Date of Inspection: June 28th and 29th 2016 EPA arrived on site at about 9:00 am.

Overview: EPA scheduled this inspection of United States Steel (USS) Clairton Works (Company or Facility) as part of its routine program for facility compliance evaluation in Region III due to emission requirements issues and discussions with other interested parties. EPA requested documentation on the monitoring and recordkeeping requirements of the applicable regulations and USS's normal programs for meeting the regulations. EPA sent an email to USS on June 14, 2016 to notify the Company of the inspection and to request that certain information be available during the inspection. USS Clairton Works is the largest coke plant in North America. Coke is used in blast furnaces for the production of iron which is then transported to a set of two Basic Oxygen Furnaces which convert the iron to steel at USS's Edgar Thomson plant in Braddock, PA. Metallurgical coke is basically carbon which is made by vaporizing the volatile matter in coal by charging coal into very hot coke ovens and the offgas from the ovens is sent to a series of chemical byproduct plants for the recovery of tar, light oil, sulfur, ammonia along with other chemicals. The coal is transported to Clairton Works in barges that travel down the Monongahela River from various mines. Clairton has emission sources that are subject to various Part 63 Maximum Available Control Technology regulations as well as the Pennsylvania State Implementation Plan regulations and Part 61 regulations for benzene emissions from coke byproduct recovery plants and benzene waste operations. Clairton emits enough volatile organic compounds, criteria pollutants and hazardous air pollutants to be considered as a major emission source. EPA has a long enforcement history with this plant going back to the original Clean Air Act in 1970.

Opening Conference:

Shortly after arrival, EPA was escorted to a conference room in the main office of the Clairton plant for a detailed discussion of the inspection and agenda. The EPA inspectors identified ourselves to the plant personnel and presented our EPA credentials and identification. Mr. Hagedorn told the USS personnel that EPA was on-site to perform a routine inspection of the plant emissions sources and Clean Air Act permit compliance status. Ms. Vazquez and Ms. Malone participated in the inspection to observe the coke-making process and inspection techniques specific to coke plants. Angela Crowley, of

Allegheny County Health Department (ACHD), showed the two of them how she performs her daily inspections of Clairton Coke Works.

Mr. Hagedorn explained that EPA Region III oversees the air programs in 5 states (Pennsylvania, Maryland, Virginia, Delaware, and West Virginia) as well as the District of Columbia. Jim indicated that EPA wanted to initially discuss the Facility operations and then to physically examine the facilities and other air emission points.
Mr. Hagedorn further indicated that EPA wanted to take some photographs of the Facility and that we would supply USS with a copy of the photos for review. If USS believed that any of the photos contained Confidential Business Information (CBI), EPA would mark them "CBI" and treat them as such. Mr. Hagedorn also indicated that EPA would be writing an inspection report and that if any parts of the discussion were to be considered CBI, please let EPA know so the report could reflect that. Nothing has been claimed as CBI thus far. EPA noted that the Agency would send a copy of the inspection report to USS within about 8 weeks.

Inspection Highlights:

During this inspection, EPA reviewed with the USS personnel some of the information requested in the June 14th 2016 email and the company provided some hard copy information for EPA review. The information submitted will be reviewed in detail shortly. Some of that information was taken by EPA during the inspection. Any written responses and documentation provided by this company will be filed in EPA's file room under United States Steel Clairton Works at the conclusion of EPA's investigation. The company's oral responses are noted in this report.

The USS personnel were very helpful and cooperative during this facility inspection. The information on Clairton Works, as noted in the following paragraphs and in general in this report, was provided to EPA by personnel from USS during the time period of June 28th and 29th 2016 as follows:

1. At the opening conference, all the attendees provided their titles and current position.
2. EPA received general information on the facility, USS's economic condition and the current operating situation. A listing of the received documents is included at the end of this report.
3. Battery coking times and battery maintenance information was provided. At the time of the inspection, USS representatives stated that Clairton was operating coke oven batteries 13, 14, 15, 19, and 20 at 36-hour coking time from the time the coal is charged into the ovens. Batteries 1, 2 and 3 were operating on 21.75-hour coking time and the large B and C batteries were on 24-hour coke. Clairton Works was previously producing 12,300 tons of coke per day but at the time of the inspection were down to 8,500 tons of coke per day. The entire coke industry has been affected by global competition.
4. EPA inspectors looked at the compliance status for coke battery doors, topsides, charging, pushing, and combustion stacks to the extent possible with the limited number of available EPA personnel over this two day period. New EPA representatives were able to observe the coking operation, the equipment utilized, the inspection procedures and the emission sources involved in the coke making process. Additional inspections may be required to fully evaluate the current compliance status with all applicable regulations as numerous regulations apply to this plant and it contains many emission sources. USS representatives stated that the blast furnaces at Gary Works in Gary, Indiana used to be supplied with coke by Clairton Works but the Gary plant is no

longer being used very much.

5. The coking process at the Clairton plant produces light oil, tar, coke and elemental sulfur which are all saleable products. USS representatives stated that Koppers Company has been handling the tar generated at Clairton but USS now has to go with a different tar company which has yet to be determined. USS used to have a chemical facility on Neville Island in the Ohio River but this plant is no longer affiliated with USS.
6. Dave Hacker stated that USS is dealing with certain trade issues now due to the influx of imported steel and monetary losses by the Company. For example, the Granite City, Fairfield and Gary plants have all taken cuts in production. Two blast furnaces are shutdown at Granite City, the Fairfield plant has been permanently idled and Gary Works has also been shutdown. USS Clairton Works is the only coke plant operating for USS at the present time.
7. Number 15 coke battery was put on hot idle status for 4-5 years, meaning they kept the refractory hot but did not produce any coke in the ovens. From 2007 through 2016, USS did throughwall repairs on all the ovens at "B" battery. USS representatives stated that the cost of a throughwall repair is one million to one and a half million dollars per oven.
8. Uhde Corporation did resolve the excess charging emissions at the new "C" coke battery. Veolia Company does the Method 303 inspections at Clairton Works on a daily basis. Drilling for natural gas did provide a need for steel but that activity is winding down.
9. A coal blend, consisting of both low volatility coal and high volatility coal is used in order to control the pressure on the oven walls. The pressure within the coke ovens must be regulated to ensure that the oven refractory does not deteriorate.
10. Mike Dzurinko stated that his group in the Environmental Department at Mon Valley Works went from seven employees down to five. Mike estimated that the plant is down by 25% on employment from where it used to be. USS representatives stated that layoffs had recently occurred at Clairton Works due to the slowdown in the steel industry. The Mon Valley Works is made up of four facilities, namely, Clairton, Edgar Thomson, Irvin, and Fairless plants.
11. USS representatives stated that they had last met with PennFuture environmental group back in 2014 over concerns about the emissions from Clairton Works.
12. All coal blending is done down at the river where the coal comes in by barge. USS is currently using two barge unloaders.
13. The Company installed low emission quench towers in the Clairton plant covering the 19 and 20 battery unit and the 13-15 coke battery unit at a cost of 50 million dollars each. These new towers have a double set of baffles to capture particulate emissions from the quenching operation. These baffles are sprayed off with water every other push.
14. The Company said that 5.8 million tons of coal equates to 4.3 million tons of coke due to the vaporization of volatiles from the coal into the coke oven gas (COG). USS said that more COG goes to Irvin Works than to Edgar Thomson Works due to the reheaters for heating up the steel prior to rolling the steel out to product specs.
15. EPA spoke with the coal handlers at Clairton Works regarding the coal preparation and coal blending procedures. Frank Kozleuchar of USS talked about the general coal handling procedure at Clairton and the coal blend Clairton uses for oven maintenance. Frank said that Clairton uses a blend of low volatility coal, high volatility coal, mid volatility coal, standard B high volatility coal and premium A high volatility coal to meet ovens needs at the time of coking. Frank handles 20 some branded coals from 6-10 different coal suppliers including mines from both West Virginia and Virginia mining sites. Frank stated that he pays careful attention to the following coal parameters: moisture, ash, sulfur content, and volatile matter. Frank said that

Powder River Basin coal can run 8-10 dollars per ton but Clairton normally gets coal at 50-80 dollars per ton on an ongoing basis. The coal moisture runs the range of 6.5 to 8.5% moisture when they charge it into the ovens. Coal usage at Clairton is around 6 million tons per year charged to the coke ovens. EPA was told that the oven temperature was around 2500 degrees Fahrenheit at the time of the inspection. The pushing emission control system installed at the four meter batteries is a hood and baghouse configuration where the pushing emissions are controlled to some degree but the travel emissions generated during the trip to the quench tower are not controlled.

16. The results of the inspections were as follows:

Emission Source	*Date*	*Allowable*	*Actual*	*Inspector*
#1 Battery Pushing	6-28-16	<20% Opacity	5% opacity A15-1 Battery	Jim Hagedorn
#3 Battery Doors	6-28-16	10% Leaking Doors	0% Doors Leaking	Jim Hagedorn
#2 Battery Doors	6-28-16	10% Leaking Doors	0% Doors Leaking	Jim Hagedorn
#1 Battery Doors	6-28-16	10% Leaks	0% Leaks	Jim Hagedorn
#19-20 Pushing	6-28-16	<20% Opacity	5%-10% Opacity	Jim Hagedorn
20 Battery Doors	6-28-16	10% Leaking	0% Leaks	Jim Hagedorn
"B" Battery Topside	6-29-16	4% Leaking	0% Leaks	Jim Hagedorn
"B" Battery Charging	6-29-16	55 sec./5 charges	9 sec./5 charges	Jim Hagedorn
19 Battery Doors	6-28-16	10% Leaks	0% Leaks	Jim Hagedorn
#3 Stack	6-28-16	3 min. >= 20%	0 min. >= 20%	Erin Malone
#1 Stack	6-28-16	3 min >=20%	0 min >= 20%	Natalia Vazquez

At the conclusion of Wednesday's activities, EPA thanked the facility personnel for their assistance and stated that an inspection report would be issued to USS Clairton Works. EPA left the facility around 3:30 PM for the drive back to the hotel.

Information Received From USS:

1. Mon Valley Works General Information Handout
2. C Battery Permit Application Information
3. Askania House battery backpressure charts
4. Opening Meeting Sign In Sheet
5. Gore SO2 Control System (CBI)
6. Oven Pushing Operating Procedure (CBI)
7. Battery Oven Door Cycle Document (CBI)
8. Oven Charging/Topside Emissions Document (CBI)
9. MACT Pushing Work Practice Procedure (CBI)
10. Battery Draft Stacks Document (CBI)

11. Dry Gumming Document (CBI)
12. Fugitive Dust Control Document
13. Startup, Shutdown, Malfunction Plan
14. End Flue Repair Batteries 13, 14, and 15 Document
15. Regenerator Repair Batteries 13, 14, and 15 Document
16. Baghouse Operation Document
17. Road Dust Control Document
18. NO_x Compliance Document
19. Coke By-Product NESHAP Requirements Document

Photo Log

Photo	Description
1	Pusher Side Coke Oven Doors
2	New Quench Tower at Clairton
3	Hot Car With Emission Control System
4	Pushing Control Baghouses and Piping
5	Hot Coke Pushed Into Hot Car
6	Another New Quench Tower
7	Coke Oven Doors
8	Topside of Coke Ovens and Larry Car
9	Topside of Coke Ovens Showing Offtake Pipes and Lids
10	"B" Battery Topside Showing Shed and Offtake Pipes
11	Another Shot of "B" Battery Topside With Lidman Working
12	Shipping Coke Out of Plant By Rail
13	Picture of Clairton From Main Road